

**INCENTIVE CALL MINUTES****BACKGROUND OF THE INVENTION****1. Technical Field:**

The present invention relates generally to business  
5 incentive programs. More specifically, the present  
invention is directed toward an incentive program that  
rewards customers by awarding telephone call minutes as  
an incentive for their continued business.

**2. Description of Related Art:**

10 The mobile telephone has ushered in a new era in  
interpersonal communications. While the late 1990s'  
widespread consumer interest in the Internet made ours a  
wired world, technical advances and increased consumer  
appeal are ushering in a new "wireless world." A number  
15 of mobile telephone manufacturers and service providers  
cater to a growing base of mobile telephone subscribers.

Unlike most local telephone service in the United  
States, but akin to long-distance service, mobile  
telephone service is usually billed in minutes of  
20 airtime. That is, the amount a customer is charged is  
proportional to the amount of time spent in mobile  
telephone calls. For instance, a five minute call will  
usually cost five times as much as a one minute call.

Because having every minute of every call charged  
25 for is a major discouragement to consumers wishing to use  
mobile telephones, mobile service providers often employ  
a billing system in which customers pre-pay for a certain  
number of minutes of airtime each month. When a customer  
makes a call, the minutes of airtime are subtracted from

the customer's balance of minutes for the month. Any additional minutes exceeding the customer's pre-paid balance are billed for separately. In most billing schemes, the current month's minutes expire at the end of  
5 the month if not used.

Thus, many mobile telephone customers pay for their telephone usage by redeeming pre-paid credits (measured in minutes of airtime). This scheme has many analogs in other areas of business. For instance, most individuals  
10 will mail a letter by first buying a pre-paid postage credit (i.e., a postage stamp), then redeeming the credit (i.e., mailing the letter with the stamp attached). This pre-paid telephone service has now also become available for service on non-mobile telephones.

15 As pre-paid telephone minutes for mobile telephone service and long-distance service have become popular, it would be desirable to capitalize on the popularity of these services to provide incentives to business customers. This is especially true when one considers  
20 the increasing number of functions for which mobile phones are being used. For example, in addition to normal voice conservation, mobile phones are already being used for Internet access.

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**SUMMARY OF THE INVENTION**

The present invention provides a method, computer program, and data processing system for providing telephone call minutes as an incentive for participating in commercial transactions. An amount of telephone minutes commensurate with a transaction (e.g., a number of minutes per dollar spent at a store) is crediting to a user's pre-paid telephone account in response to entering into a commercial transaction with an organization offering the incentive.

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**BRIEF DESCRIPTION OF THE DRAWINGS**

The novel features believed characteristic of the invention are set forth in the appended claims. The invention itself, however, as well as a preferred mode of use, further objectives and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

**Figure 1** depicts a pictorial representation of a network of data processing systems in which the present invention may be implemented;

**Figure 2** depicts a block diagram of a data processing system that may be implemented as a server in accordance with a preferred embodiment of the present invention;

**Figure 3** depicts a block diagram illustrating a data processing system in which the present invention may be implemented;

**Figure 4** is a diagram depicting an overall view of system for providing incentive telephone call minutes in a preferred embodiment of the present invention;

**Figure 5** depicts a diagram illustrating the format of an account database in accordance with the present invention; and

**Figure 6** depicts a flowchart representation of a process of awarding incentive call minutes in accordance with a preferred embodiment of the present invention.

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**DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

With reference now to the figures, **Figure 1** depicts a pictorial representation of a network of data processing systems in which the present invention may be implemented.

- 5 Network data processing system **100** is a network of computers in which the present invention may be implemented. Network data processing system **100** contains a network **102**, which is the medium used to provide communications links between various devices and computers  
10 connected together within network data processing system **100**. Network **102** may include connections, such as wire, wireless communication links, or fiber optic cables.

In the depicted example, server **104** is connected to network **102** along with storage unit **106**. In addition, clients **108**, **110**, and **112** are connected to network **102**. These clients **108**, **110**, and **112** may be, for example, personal computers or network computers. In the depicted example, server **104** provides data, such as boot files, operating system images, and applications to clients  
20 **108-112**. Clients **108**, **110**, and **112** are clients to server **104**. Network data processing system **100** may include additional servers, clients, and other devices not shown. In the depicted example, network data processing system **100** is the Internet with network **102** representing a  
25 worldwide collection of networks and gateways that use the TCP/IP suite of protocols to communicate with one another. At the heart of the Internet is a backbone of high-speed data communication lines between major nodes or host computers, consisting of thousands of commercial,  
30 government, educational and other computer systems that

TODAY'S DATE: 08/22/2001

route data and messages. Of course, network data processing system **100** also may be implemented as a number of different types of networks, such as for example, an intranet, a local area network (LAN), or a wide area network (WAN). **Figure 1** is intended as an example, and not as an architectural limitation for the present invention.

Referring to **Figure 2**, a block diagram of a data processing system that may be implemented as a server, such as server **104** in **Figure 1**, is depicted in accordance with a preferred embodiment of the present invention.

Data processing system **200** may be a symmetric multiprocessor (SMP) system including a plurality of processors **202** and **204** connected to system bus **206**.

Alternatively, a single processor system may be employed.

Also connected to system bus **206** is memory controller/cache **208**, which provides an interface to local memory **209**. I/O bus bridge **210** is connected to system bus **206** and provides an interface to I/O bus **212**. Memory controller/cache **208** and I/O bus bridge **210** may be integrated as depicted.

Peripheral component interconnect (PCI) bus bridge **214** connected to I/O bus **212** provides an interface to PCI local bus **216**. A number of modems may be connected to PCI local bus **216**. Typical PCI bus implementations will support four PCI expansion slots or add-in connectors.

Communications links to clients **108-112** in **Figure 1** may be provided through modem **218** and network adapter **220** connected to PCI local bus **216** through add-in boards.

Additional PCI bus bridges **222** and **224** provide interfaces for additional PCI local buses **226** and **228**, from which additional modems or network adapters may be

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supported. In this manner, data processing system **200** allows connections to multiple network computers. A memory-mapped graphics adapter **230** and hard disk **232** may also be connected to I/O bus **212** as depicted, either

5 directly or indirectly.

Those of ordinary skill in the art will appreciate that the hardware depicted in **Figure 2** may vary. For example, other peripheral devices, such as optical disk drives and the like, also may be used in addition to or in  
10 place of the hardware depicted. The depicted example is not meant to imply architectural limitations with respect to the present invention.

The data processing system depicted in **Figure 2** may be, for example, an IBM e-Server pSeries system, a  
15 product of International Business Machines Corporation in Armonk, New York, running the Advanced Interactive Executive (AIX) operating system or LINUX operating system.

With reference now to **Figure 3**, a block diagram  
20 illustrating a data processing system is depicted in which the present invention may be implemented. Data processing system **300** is an example of a client computer. Data processing system **300** employs a peripheral component interconnect (PCI) local bus architecture. Although the  
25 depicted example employs a PCI bus, other bus architectures such as Accelerated Graphics Port (AGP) and Industry Standard Architecture (ISA) may be used.

Processor **302** and main memory **304** are connected to PCI local bus **306** through PCI bridge **308**. PCI bridge **308** also  
30 may include an integrated memory controller and cache memory for processor **302**. Additional connections to PCI local bus **306** may be made through direct component

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interconnection or through add-in boards. In the depicted example, local area network (LAN) adapter **310**, SCSI host bus adapter **312**, and expansion bus interface **314** are connected to PCI local bus **306** by direct component

- 5 connection. In contrast, audio adapter **316**, graphics adapter **318**, and audio/video adapter **319** are connected to PCI local bus **306** by add-in boards inserted into expansion slots. Expansion bus interface **314** provides a connection for a keyboard and mouse adapter **320**, modem **322**, and  
10 additional memory **324**. Small computer system interface (SCSI) host bus adapter **312** provides a connection for hard disk drive **326**, tape drive **328**, and CD-ROM drive **330**. Typical PCI local bus implementations will support three or four PCI expansion slots or add-in connectors.

- 15 An operating system runs on processor **302** and is used to coordinate and provide control of various components within data processing system **300** in **Figure 3**. The operating system may be a commercially available operating system, such as Windows 2000, which is available from  
20 Microsoft Corporation. An object oriented programming system such as Java may run in conjunction with the operating system and provide calls to the operating system from Java programs or applications executing on data processing system **300**. "Java" is a trademark of Sun  
25 Microsystems, Inc. Instructions for the operating system, the object-oriented operating system, and applications or programs are located on storage devices, such as hard disk drive **326**, and may be loaded into main memory **304** for execution by processor **302**.

- 30 Those of ordinary skill in the art will appreciate that the hardware in **Figure 3** may vary depending on the

implementation. Other internal hardware or peripheral devices, such as flash ROM (or equivalent nonvolatile memory) or optical disk drives and the like, may be used in addition to or in place of the hardware depicted in

- 5 **Figure 3.** Also, the processes of the present invention may be applied to a multiprocessor data processing system.

As another example, data processing system **300** may be a stand-alone system configured to be bootable without 10 relying on some type of network communication interface, whether or not data processing system **300** comprises some type of network communication interface. As a further example, data processing system **300** may be a personal digital assistant (PDA) device, which is configured with 15 ROM and/or flash ROM in order to provide non-volatile memory for storing operating system files and/or user-generated data.

The depicted example in **Figure 3** and above-described examples are not meant to imply architectural 20 limitations. For example, data processing system **300** also may be a notebook computer or hand held computer in addition to taking the form of a PDA. Data processing system **300** also may be a kiosk or a Web appliance.

**Figure 4** is a diagram depicting an overall view of 25 system for providing incentive telephone call minutes in a preferred embodiment of the present invention.

Identification card **400** stores an account number identifying a user's pre-paid telephone service account.

A user presents identification card **400** to be read by 30 point-of-sale terminal **402**, which is a type of client computer. Note that the embodiment depicted in **Figure 4** is intended to be operated in the context of a retail

shopping establishment; one of ordinary skill in the art will recognize that the invention is not limited to application in retail, but may be used in conjunction with any type of commercial transaction and any

- 5 appropriate type of data processing or computer equipment for carrying out such transactions, such as an airline reservation system, for example.

Also, it should be noted that identification card **400** is merely representative of a number of

- 10 identification devices that may be employed within the present invention. Alternatively, a human operator could manually enter information into point-of-sale terminal **402** identifying the user and his/her telephone service account number.

- 15 Point-of-sale terminal **402** registers a commercial transaction (in this case, a sale of goods or services) and calculates a number of incentive call minutes to be credited to the telephone account associated with identification card **400** as a business incentive. The  
20 number of minutes will be commensurate with the commercial transaction performed. For instance, a number of minutes that is proportional to the amount purchased by the user may be credited to the user's account. Other (possibly arbitrary) formulas or methods of calculating  
25 an appropriate number of minutes may be applied.

Point-of-sale terminal **402** transmits the number of call minutes and the user's telephone service account number through Internet **404** to server **406**, which is associated with the user's telephone service provider.

- 30 Server **406** credits the appropriate number of minutes to the user's account by updating account database **408**.

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Point-of-sale terminal **402** includes displays for displaying information about the status of a commercial transaction to both the operator of point-of-sale terminal **402** and to a customer. A keyboard allows an 5 operator to manually enter alphanumeric and other information into point-of-sale terminal **402**. A magnetic card reader may be used to read the contents of plastic identification cards, such as credit cards or identification card **400** into the memory of point-of-sale 10 terminal **402**. Point-of-sale terminal can be supplemented with a number of peripheral devices for reading information from identification cards or other identification devices.

Identification card **400** might several identification 15 mechanisms in common use. For example, identification card **400** might include a magnetic stripe made of a magneto resistive material. An account number may be recorded on the magnetic stripe and read using a magnetic card reader. Alternatively, a barcode can also be used 20 to encode an account number, which can then be read using a laser barcode reader. Information, such as an account number or other identifying information may also be stored in a small microprocessor and memory embedded within identification card **400**. This information may be 25 accessed by a reader making electrical contact with the card and interfacing with the embedded microprocessor. Identification and other cards that contain an embedded microprocessor and contact pad are known as smart cards.

Identification card **400** may also contain a 30 radio-frequency identification (RFID) tag. This tag may be written to or read from by subjecting it to a radio-frequency signal. The integrated circuit in the

RFID tag collects all of its power from the energy in the radio-frequency signal. RFID tags provide a ready form of identification or marking of an object.

In addition to the example of identification card  
5 **400**, RFID technology can take many forms and be used in many contexts. One example is an RFID key fob, which is an RFID tag that is attached to a key ring.

Referring now to **Figure 5**, a diagram illustrating the format of an account database, such as account  
10 database **408** in **Figure 4**, is depicted in accordance with the present invention. Database **500** may be implemented using any of a number of database infrastructures, including (but not limited to) relational and object-oriented database types. Database **500** includes  
15 entries for each of the customers of a telephone service provider. Account holder field **502** stores the name or identity of each customer. Account number field **504** stores an account number for each customer, which may be the customer's telephone number. Number of minutes field **506**  
20 stores a customer's balance of available call minutes. Crediting a customer's account with incentive call minutes involves adding a number of minutes to the balance stored in number of minutes field **506** for that customer.

25 Note that the minutes amounts stored in database **500** may correspond to any type of pre-paid call minutes: long distance minutes, local call minutes, e-mail, calendar downloads, and any other type of mobile telephone airtime minutes.

30 Referring to **Figure 6**, a flowchart representation of a process of awarding incentive call minutes is depicted in accordance with a preferred embodiment of the present

invention. First, a transaction with a customer is completed (step **601**). An amount of call minutes to be credited to the customer's telephone account is calculated that is commensurate with the transaction  
5 performed (step **602**). The total minutes are then sent to the mobile phone service provider (step **603**). Finally, the customer's account is credited by the number of minutes calculated (step **604**).

In addition to the "brick and mortar" commercial  
10 transactions described above, the present invention can also be applied to Internet transactions. This is especially important as mobile phones are applied to an increasing range of function, such as Internet access. In the future, mobile phones may also be applied to other  
15 functions, such as bank account access, activation of home appliances, arming/disarming home security systems, and transmission of medical data (e.g., pulse rate and blood pressure). The present invention may be applied to any of the above functions, as well as any other type of  
20 mobile phone "air time". The invention is not limited to merely voice communication time.

The present invention also is not limited to purchases. Although purchases are likely to be the most common type of commercial transaction encountered, the  
25 present invention applies to any type of exchange of service, and is not restricted to a point-of-sale. The present invention may be applied to rental agreements. For example, the present invention may be applied to car rental, wherein the customer acquires call minutes in proportion to the number of miles driven.  
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Another example, is acquiring call minutes just for taking a test drive at a car dealership, wherein not

actual sale has to take place. This could apply to any type of product/service test or sample.

Call minutes may also be awarded for the length of subscriptions. For example, the number of call minutes would increase with the length of a magazine subscription (e.g., 6 months, 1 year, 2 year). Subscriptions might also include cable TV and Internet service.

It is important to note that while the present invention has been described in the context of a fully functioning data processing system, those of ordinary skill in the art will appreciate that the processes of the present invention are capable of being distributed in the form of a computer readable medium of instructions and a variety of forms and that the present invention applies equally regardless of the particular type of signal bearing media actually used to carry out the distribution. Examples of computer readable media include recordable-type media, such as a floppy disk, a hard disk drive, a RAM, CD-ROMs, DVD-ROMs, and transmission-type media, such as digital and analog communications links, wired or wireless communications links using transmission forms, such as, for example, radio frequency and light wave transmissions. The computer readable media may take the form of coded formats that are decoded for actual use in a particular data processing system.

The description of the present invention has been presented for purposes of illustration and description, and is not intended to be exhaustive or limited to the invention in the form disclosed. Many modifications and variations will be apparent to those of ordinary skill in the art. The embodiment was chosen and described in

order to best explain the principles of the invention,  
the practical application, and to enable others of  
ordinary skill in the art to understand the invention for  
various embodiments with various modifications as are  
5 suited to the particular use contemplated.